

BARNES & THORNBURG



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PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Group: Unknown

Attorney

Docket: 3053-28781

Applicant: Curtis L. Taylor

Invention: OXYGEN-FUEL BURNER WITH
INTEGRAL STAGED OXYGEN
SUPPLY

Serial No.: 08/954,291

Filed: October 17, 1997

Examiner: Unknown

Application To Reissue
U.S. Patent No. 5,458,483
Issued October 17, 1995
on U.S. Application Serial No. 163,424
Filed December 8, 1993

Certification Under 37 CFR 1.8(a)

I hereby certify that this correspondence is being deposited
with the United States Postal Service as first class mail in
an envelope addressed to Assistant Commissioner for
Patents, Washington, D.C. 20231

on Aug 4, 1998

Jill L. Woodburn

Jill L. Woodburn (Reg. No. 30,874)

Dated: Aug. 4, 1998

SUPPLEMENTAL DECLARATION BY INVENTOR

Box: Missing Parts
Assistant Commissioner
for Patents
Washington, D.C. 20231

Sir:

I, Curtis L. Taylor, declare that I am a citizen of the United States of America;
that I verily believe myself to be the sole, original, and first inventor of the invention described
and claimed in U.S. Letters Patent No. 5,458,483 (hereinafter '483 PATENT) and in the
foregoing specification and for which invention I solicit a reissue patent; that I do not know
and do not believe that said invention was ever known or used in the United States of America
before my invention thereof; that I disclosed and claimed in the '483 PATENT a burner

assembly (See, e.g., claim 1 in the '483 PATENT) comprising "a burner block . . . bypass means. . . an oxygen-supply housing including chamber means for receiving a supply of oxygen and a base wall . . . the base wall being formed to include first aperture means . . . and second aperture means. . . and means for discharging fuel into the flame chamber formed in the burner block, the discharging means including a nozzle extending through the chamber means and the first aperture means formed in the base wall to discharge fuel into the flame chamber"; that during the preparation and prosecution of the application that led to the '483 PATENT I believed that the claim covered structure illustrated in Figs. 2, 3A, 3B, 4, 5, 7, and 8 in the '483 PATENT; that subsequent to the issuance of the '483 PATENT I became aware of a potential infringement of the claims of the '483 PATENT; that in January 1997, in connection with reviewing that potential infringement, my attorneys reviewed the claims of the '483 PATENT; in July 1997, my attorneys carefully reviewed the specification and claims of the '483 PATENT and realized that it was not necessary to include claim limitations covering the nozzle and the "means plus function" language to define a patentable invention in claims for a burner assembly; that I have unsuccessfully sought to obtain the potentially infringing device; that I have considered the results of the evaluation of the specification and claims by my attorneys; and that accordingly, I now verily believe the '483 PATENT to be wholly or partly inoperative or invalid by reason of my claiming less than I had a right to claim in the '483 PATENT.

I request that I be permitted to amend the '483 PATENT and be granted a reissue patent; that errors rendering the '483 PATENT wholly or partly inoperative or invalid, caused the claims of such patent to be of more narrow scope than necessary to distinguish over the prior art; that such errors arose because I and my patent attorneys did not appreciate the overly narrow character of the claims at the time I made the invention and prepared and

prosecuted the application that matured into the '483 PATENT; and that such errors arose through error and without any deceptive intent.

Specifically, I claimed less than I had a right to claim in the '483 PATENT by claiming claims 1-39 covering burner assemblies comprising "bypass means" "chamber means", "first aperture means", "second aperture means", and "discharging means"; claims 40-53 covering burner assemblies comprising a burner block, a nozzle, "fixing means", supplying means", first-stage metering means", bypass means", and second-stage metering means"; claims 54-59 covering burner assemblies comprising a burner block, "bypass means", an oxygen-supply housing, "frame means", a fuel nozzle module, and "supporting means"; and claims 60-68 comprising a burner block and an oxygen-supply housing including a hollow shell having a pyramidal shape and a plurality of triangular side walls. I seek to add new claims 69-120.

I also seek to amend Fig. 1 of the drawings by adding a reference numeral 220 referring to an outer surface of removable collar 22; reference numeral 222 referring to an inner surface of removable collar 22; reference numeral 224 referring to an external side wall of removable collar 22; and reference numerals 226 referring to bounding surfaces of side wall 224. In addition, I seek to amend Fig. 3A of the drawings by changing reference numeral 7 referring to a mounting fixture of gas conduit 70 to reference numeral 71 and by adding a reference numeral 72 referring to O-ring seals; reference numeral 220 referring to an outer surface of removable collar 22; reference numeral 222 referring to an inner surface of removable collar 22; reference numeral 228 referring to an internal side wall of removable collar 22; reference numeral 230 referring to a passageway between outer and inner surfaces 220, 222; reference numeral 232 referring to a threaded portion of internal side wall 228; reference numerals 234 referring to a limit tab of internal side wall 228; reference numeral

236 referring to a recess in internal side wall 228; reference numerals 239 referring to an inner surface of rear lip portion 75; reference numerals 240 referring to an outer surface of rear lip portion 75; reference numeral 250 referring to an outer end of mounting fixture 71; and reference numerals 252 referring to an inner end of mounting fixture 71.

I also seek to amend Fig. 7 of the drawings by adding reference numeral 22 referring to the removable collar; reference numeral 34 referring to an inlet opening of flame chamber 32; reference numerals 35 referring to a wall defining inlet opening 34; reference numeral 220 referring to an outer surface of removable collar 22; reference numeral 222 referring to an inner surface of removable collar 22; reference numerals 271 referring to a mounting fixture on body portion 155 of fuel-delivery assembly 152; reference numeral 228 referring to an internal side wall of removable collar 22; reference numeral 232 referring to a threaded portion of internal side wall 228; reference numeral 234 referring to a limit tab of internal side wall 228; reference numeral 236 referring to a recess in internal side wall 228; reference numerals 239 referring to an inner surface of rear lip portion 75; reference numeral 240 referring to an outer surface of rear lip portion 75; reference numerals 350 referring to an outer end of mounting fixture 271; reference numerals 352 referring to an inner end of mounting fixture 271; and reference numeral 254 referring to a lip portion of mounting fixture 271 adjacent outer end 350.

I also seek to amend the specification at Col. 5 line 55; Col. 8 line 8; Col. 9 line 43; and Col. 9 line 54, to make changes that correspond to the language set out in the new claims and to correct typographical errors. As recited in the attached Preliminary Amendment, I also seek to replace the paragraphs beginning at Col. 4 line 64; Col. 6 line 19; and Col. 10 line 6 to reflect the amendments to Figs. 1, 3A, and 7. No new matter is believed to be added by virtue of the amendments to the specification.

I also seek to correct the References Cited on the face of the '483 PATENT by adding in the U.S. Patent Documents --4,351,632 9/1982 Nagai-- and by adding --Foreign Patent Documents 2,048,456 12/1980 United Kingdom; 143,307 11/1980 Japan; and 340,006 4/1981 Japan--. The references were cited during prosecution of the '483 PATENT, (see the PTO-1449 in Attachment A) but were not listed on the face of the '483 PATENT.

Newly presented independent claim 69 claims structurally a burner assembly that includes a burner block formed to include a flame chamber having an inlet opening and an outlet opening, an oxygen conductor conduit configured to conduct oxygen along a route outside of the flame chamber to the outlet opening, and an oxygen-supply housing defining an oxygen chamber configured to receive a supply of oxygen and a base wall positioned to lie adjacent to the burner block. Claim 69 also requires that the base wall includes a first-stage aperture positioned to lie in alignment with the inlet opening and to pass oxygen from the oxygen chamber into the flame chamber and a second-stage aperture arranged to lie in spaced-apart relation to the first-stage aperture to pass oxygen from the oxygen chamber into the oxygen conductor conduit. In addition, claim 69 also requires that the internal diameter of the oxygen conductor conduit to second-stage aperture is less than the internal diameter of the oxygen conductor conduit to regulate the flow of oxygen from the oxygen chamber through the oxygen conductor conduit and that a fuel-discharge nozzle is positioned to lie adjacent to the inlet opening and is configured to discharge fuel into the flame chamber formed in the burner block. Newly presented claim 69 eliminates details regarding the nozzle and "means plus function" language not needed to define patentability over the prior art. Newly presented claims 70-84 depend from claim 69 and recite in more detail features of the oxygen conductor conduit, the base wall, the oxygen-supply housing, and the fuel-discharge nozzle.

Claim 85 differs from patent claim 1 in that it eliminates "means for" language found throughout. Newly presented independent claim 85 instead recites structural details of a burner assembly that includes a burner block formed to include a flame chamber having an inlet opening and an outlet opening, an oxygen conductor conduit configured to conduct oxygen outside of the flame chamber to the outlet opening of the flame chamber, an oxygen-supply housing defining an oxygen chamber configured to receive a supply of oxygen and a base wall positioned to lie adjacent to the burner block. Claim 85 also requires that the base wall includes a first-stage aperture in alignment with the inlet opening to pass oxygen from the oxygen chamber into the flame chamber and a second-stage aperture arranged to lie in spaced-apart relation to the first-stage aperture to pass oxygen from the oxygen chamber into the oxygen conductor conduit. In addition, claim 85 requires that a fuel-discharge nozzle extends through the oxygen chamber and the first-stage aperture to discharge fuel into the flame chamber. Newly presented claims 86-97 depend from claim 85 and recite in more detail features of the oxygen-supply housing, the burner block and recite a frame and a removable collar.

Newly presented independent claim 98 differs from patent claim 29 in that it eliminates "means for" language found throughout. Newly presented independent claim 98 instead recites structural details of a burner assembly that includes a burner block with a flame chamber having an inlet opening and an outlet opening, an oxygen conductor conduit configured to conduct oxygen outside of the flame chamber to the outlet opening of the flame chamber, a fuel-discharge nozzle positioned to lie in the inlet opening and configured to discharge fuel into the flame chamber of the burner block, and an oxygen-supply housing defining an oxygen chamber configured to receive a supply of oxygen and a base wall positioned to lie adjacent to the burner block. Claim 98 also requires that the base wall

includes a first-stage aperture positioned to pass oxygen from the oxygen chamber into the flame chamber and a second-stage aperture positioned to pass oxygen from the oxygen chamber into the corresponding oxygen conductor conduit. In addition, claim 98 requires that the second-stage aperture defines a second-stage oxygen port with a first effective cross-sectional area and communicating oxygen from the oxygen chamber to the outlet opening of the flame chamber through the oxygen conductor conduit and that a flange is positioned to lie between the base wall and the burner block to extend about the fuel-discharge nozzle to fix the fuel-discharge nozzle in the inlet opening. Claim 98 further requires that the flange includes a third-stage aperture for conducting oxygen discharged through the first-stage aperture into the flame chamber and that the third-stage aperture defines a first-stage oxygen port having a first-stage oxygen port having a second effective cross-sectional area that is greater than the first effective cross-sectional area and communicates oxygen from the oxygen chamber into the flame chamber. Claims 99-100 depend from claim 98 and recite in more detail features of the base wall and the flange.

Newly presented independent claim 101 differs from patent claim 40 in that it eliminates "means for" language found throughout. Newly presented independent claim 101 instead recites structural details of burner assembly comprising a burner block formed to include a flame chamber having an inlet opening and an outlet opening, a fuel-discharge nozzle positioned to lie in the inlet opening and configured to discharge fuel into the flame chamber formed in the burner block, a flange positioned to lie around the fuel-discharge nozzle to situate the fuel-discharge nozzle adjacent to the burner block at the inlet opening of the flame chamber so that a primary combustion zone is established in the flame chamber between the inlet and outlet openings and the flange is formed to include at least one oxygen-flow aperture therethrough, and an oxygen-supply housing including an oxygen chamber configured to

receive a supply of oxygen and a base wall adjacent to the burner block. Claim 101 further requires that the base wall includes a first-stage aperture sized to supply oxygen to the flame chamber through the inlet opening so that the oxygen supplied by the first-stage aperture mixes with the fuel discharged by the fuel-discharge nozzle in a first-stage region inside the flame chamber to produce a combustible mixture that can be ignited in the primary combustion zone to define a flame having a root portion in the flame chamber and a tip portion outside the flame chamber. In addition, claim 101 requires that a partition is appended to the fuel-discharge nozzle, positioned to lie between the fuel-discharge nozzle and the flange, and formed to include at least one oxygen-flow aperture therethrough and the partition is configured to meter the flow rate of oxygen from the oxygen chamber into the flame chamber through the inlet opening. Further, claim 101 requires that an oxygen conductor conduit is configured to conduct oxygen from the oxygen chamber into a downstream second-stage region containing a portion of the flame and lying outside the flame chamber to supplement oxygen supplied to the first-stage region inside the flame chamber by the first-stage aperture and at least one aperture is formed in the base wall and arranged to interconnect the oxygen chamber and the oxygen conductor conduit in fluid communication, the at least one aperture being sized to meter the flow rate of oxygen from the oxygen chamber into the oxygen conductor conduit so that the flow rate of oxygen passing to the downstream second-stage region outside the flame chamber through the oxygen conductor conduit is fixed in proportion to the flow rate of oxygen passing through the partition. Newly presented claims 102-109 depend from claim 101 and recite in more detail features of the oxygen conductor conduit and the second-stage aperture. The claims depending from claim 101 also recite a frame and features of the base wall, the fuel-discharge nozzle, and the oxygen-supply housing.

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MAXON TECH CENTER
Newly presented independent claim 110 differs from patent claim 54 in that it omits the "means for" language throughout. Newly presented claim 110 specifically recites a burner assembly that includes a burner block that includes a flame chamber having an inlet opening and an outlet opening, an oxygen conductor conduit configured to conduct oxygen outside of the flame chamber to the outlet opening of the flame chamber, an oxygen-supply housing that includes a hollow shell that defines an oxygen chamber configured to receive a supply of oxygen and includes an aperture therein, a frame configured to couple the oxygen-supply housing to the burner block, and a fuel nozzle module that has a nozzle body and a discharge tip. In addition, claim 110 requires that the fuel nozzle module extends through the aperture formed in the hollow shell to aim the discharge tip of the fuel nozzle module into the inlet opening of the flame chamber.

Newly presented independent claim 111 differs from patent claim 1 in that it eliminates "means for" language found throughout and eliminates the bypass means element and the second aperture means of the oxygen supply element. Newly presented claim 111 recites structurally a burner assembly that includes a combination having a burner block, an oxygen-supply housing, a fuel-discharge nozzle, and a removable collar engaging the oxygen-supply housing and the fuel-discharge nozzle, the collar being formed to support the fuel-discharge nozzle within the inlet opening of the burner block. Newly presented claims 112-120 depend from claim 111 and recite in more detail features of the removable collar and the fuel-discharge nozzle.

I have reviewed and understand the contents of the specification, including the claims, as amended by all the amendments referred to above.

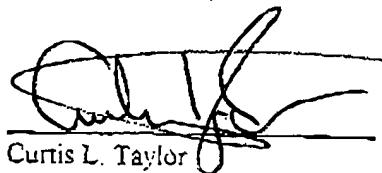
I acknowledge my duty to disclose information of which I am aware which is material to patentability as defined in Title 37, Code of Federal Regulations §1.56; and I

Further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both under 18 U.S.C. § 1001, and that such willful false statements may jeopardize the validity of the application for reissue or any patent issuing thereon.

I hereby appoint William R. Coffey, Reg. No. 24023; Jerry E. Hyland, Reg. No. 20904; Richard D. Conard, Reg. No. 27321; Steven R. Lammert, Reg. No. 27653; Richard A. Rezek, Reg. No. 30796; Timothy E. Niednagel, Reg. No. 33266; John P. Breen, Reg. No. 38833; Jill L. Werling, Reg. No. 39874; Nancy J. Harrison, Reg. No. 27083; R. Trevor Carter, Reg. No. 40549; Perry Palan, Reg. No. 26213; Mark M. Newman, Reg. No. 31472; Bobby B. Gillenwater, Reg. No. 31105; Paul B. Hunt, Reg. No. 37154; Michael S. Gzybowski, Reg. No. 32816; and Robert D. Null, Reg. No. 40746, my attorneys, with full power of substitution and revocation, to prosecute this application, and to transact all business in the Patent and Trademark Office connected therewith; and I specify that communications regarding this application to reissue be directed to:

Richard A. Rezek
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8/4/98
Date



Curtis L. Taylor



ASSENT BY ASSIGNEE

The undersigned assignee of the entire interest in the above-mentioned Letters

Patent hereby assents to the accompanying DECLARATION BY INVENTORS.

MAXON CORPORATION

By: William P. Loppin

Printed Name: WILLIAM P. Loppin

Title: VP Engineering

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